

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

CANCEL claims 1-5, 7-12 and 14-26.

ADD new claims 27-41.

**Listing of Claims:**

Claim 1 (cancelled)

Claim 2 (cancelled)

Claim 3 (cancelled)

Claim 4 (cancelled)

Claim 5 (cancelled)

Claim 6 (cancelled)

Claim 7 (cancelled)

Claim 8 (cancelled)

Claim 9 (cancelled)

Claim 10 (cancelled)

Claim 11 (cancelled)

Claim 12 (cancelled)

Claim 13 (cancelled)

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (cancelled)

Claim 17 (cancelled)

Claim 18 (cancelled)

Claim 19 (cancelled)

Claim 20 (cancelled)

Claim 22 (cancelled)

Claim 23 (cancelled)

Claim 24 (cancelled)

Claim 25 (cancelled)

Claim 26 (cancelled)

Claim 27. (newly added): A method for correcting macronutrient and micronutrient deficiencies in a system for supporting living cells, comprising:

- (i) determining deficiencies in the concentrations of macronutrients and micronutrients within said system for supporting living cells;

- (ii) forming a composition comprising a sulfamic acid moiety and a substantially water insoluble second compound including macronutrient and/or micronutrient moieties chemically reacted sufficient to form water solution-stable macronutrient and/or micronutrient products in concentration or concentrations sufficient to correct said deficiencies; and,
- (iii) contacting said system with said composition sufficient for correcting said deficiencies.

Claim 28. (newly added): The method of claim 27, wherein said composition further comprises: a plant promoting effective amount of solution-stable Ca.sup.++ moieties; a plant promoting effective amount of solution-stable S.sup.6+ moieties; a plant promoting effective amount of solution-stable Mg.sup.++ moieties; and, a plant promoting effective amount of solution-stable N.sup.3- moieties.

Claim 29. (newly added): The method of claim 28, wherein said solution-stable moieties are a reaction product formed from the reaction of: a first reactant selected from the group consisting of Sulfamic acid, a water soluble Sulfamic acid derivative, an oil soluble Sulfamic acid derivative that can be reacted to provide a water solution-stable Sulfamate, and combinations thereof; and, a second micronutrient and/or macronutrient moiety-including reactant selected from the group consisting of a carbonate, a hydroxide, a carbonate hydroxide, a hydroxide oxide, a metal, and combinations thereof.

Claim 30. (newly added): The method of claim 28, wherein the solution-stable moieties are formed by reacting effective amounts of: at least one member selected from the group consisting of: a powdered micronutrient metal, a powdered macronutrient metal, Dolomite, Aragonite (Calcium Carbonate), Artinite (Hydrated Magnesium Carbonate Hydroxide), Aurichalcite (Zinc Copper Carbonate Hydroxide), Azurite (Copper Carbonate Hydroxide), Barringtonite (Hydrated Magnesium Carbonate), Baylissite (Hydrated Potassium Magnesium Carbonate), Brugnattellite (Hydrated Magnesium Iron Carbonate Hydroxide), Butschliite (Potassium Calcium Carbonate), Calcite (Calcium Carbonate), Gaspeite (Nickel Magnesium Iron Carbonate), Magnesite (Magnesium Carbonate), Rhodochrosite (Manganese Carbonate), Siderite (Iron Carbonate), Smithsonite (Zinc Carbonate), Ankerite (Calcium Iron Carbonate), Huntite (Calcium Magnesium Carbonate), Kutnohorite (Calcium Manganese Magnesium Iron Carbonate), Minrecordite (Calcium Zinc Carbonate), Norsethite (Barium Magnesium Carbonate), Fairchildite (Potassium Calcium Carbonate), Georgeite (Hydrated Copper Carbonate Hydroxide), Hellyerite (Hydrated Nickel Carbonate), Hydrozincite (Zinc Carbonate Hydroxide), Ikaite (Hydrated Calcium Carbonate), Kalicinite (Potassium Bicarbonate), Lansfordite (Hydrated Magnesium Carbonate), Loseyite (Manganese Zinc Carbonate Hydroxide), Malachite (Copper Carbonate Hydroxide), Monohydrocalcite (Hydrated Calcium Carbonate), Nesquehonite (Hydrated Magnesium Bicarbonate Hydroxide), Pokrovskite (Hydrated Magnesium Carbonate Hydroxide), Pyroaurite (Hydrated Magnesium Iron Carbonate Hydroxide), Glaukospherite (Copper Nickel Carbonate Hydroxide), Mcguinnessite (Magnesium Copper Carbonate Hydroxide), Nullaginite (Nickel Carbonate Hydroxide), Rosasite (Copper Zinc Carbonate Hydroxide), Zincrosasite (Zinc Copper Carbonate Hydroxide), Sclarite (Zinc Magnesium Manganese Carbonate Hydroxide), Sergeevite (Hydrated Calcium Magnesium Carbonate Bicarbonate Hydroxide), Sjogrenite (Hydrated Magnesium Iron Carbonate Hydroxide),

Teschemacherite (Ammonia Bicarbonate), Vaterite (Calcium Carbonate), Zaratite (Hydrated Nickel Carbonate Hydroxide), Tetra-n-butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Tetramethylammonium hydroxide, Tetraethylammonium hydroxide, Iron (III) oxyhydroxide, Iron (III) hydroxide (gamma), Iron (III) hydroxide (alpha), Potassium hydroxide, Nickel (II) hydroxide, Hexane-1,6-bis (tributylammonium) dihydroxide, Calcium hydroxide, Tetra-n-propylammonium hydroxide, Tetra-n-butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Cobalt (II) hydroxide, Copper (II) carbonate dihydroxide, Copper (II) carbonate (basic), Copper (II) hydroxide, Ammonium hydroxide, Magnesium carbonate hydroxide, Methylboron dihydroxide, Magnesium hydroxide, Molybdenum hydroxide oxide phosphate Calcium phosphate hydroxide, Calcium phosphate tribasic, Calcium hydroxide, Zinc subcarbonate, Zinc carbonate (basic), Zinc carbonate hydroxide, Zinc hydroxide, Potassium bicarbonate, Potassium hydrogen carbonate, Potassium carbonate, Nickel (II) carbonate, Nickel (II) carbonate hydroxide, Nickel (II) carbonate (anhydrous), Nickel (II) carbonate (basic), Manganese (II) carbonate, Magnesium carbonate (basic), Magnesium carbonate hydroxide, Ammonium bicarbonate, Ammonium hydrogen carbonate, Ammonium carbonate, Nickel (II) hydroxide, Calcium phosphate hydroxide, Calcium phosphate tribasic, limestone, Magnesite, lime, slaked lime, magnesium oxide, and/or any combination thereof; and, at least one sulfamic compound, selected from the group consisting of a compound of the formula (II):  $\text{HSO}_2\text{NR}_4\text{R}_5$  (II) wherein:  $\text{R}_4$  and  $\text{R}_5$  are independently selected from the group consisting of hydrogen and a monovalent hydrocarbyl group containing from 1 to about 10 carbon atoms; and at least one of  $\text{R}_4$  or  $\text{R}_5$  is hydrogen; a compound of the formula (III):  $\text{R}_1(\text{NR}_2\text{R}_3)_n\text{HSO}_2\text{NR}_4\text{R}_5$  (III) wherein:  $\text{R}_1$  is selected from the group consisting of alkyl, hydroxyalkyl, cycloalkyl, and aryl,  $\text{R}_2$  is selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, cycloalkyl and aryl;

R.sup.3, R.sup.4 and R.sup.5 are hydrogen; and n is an integer from 1 to 3; and, combinations thereof.

Claim 31. (newly added): The method according to claim 27, wherein said composition further comprises a plant promoting effective amount of water.

Claim 32. (newly added) A composition for correcting macronutrient and micronutrient deficiencies in the concentrations of macronutrients and micronutrients within a system for supporting living cells after said deficiencies have been determined; comprising:

- (i) the product of sulfamic acid and at least one other compound including calcium and magnesium macronutrient and/or micronutrient moieties that have been chemically reacted in respective proportions sufficient to form water solution-stable macronutrient and/or micronutrient products in concentration or concentrations sufficient to correct said deficiencies after said deficiencies have been determined.

Claim 33. (newly added): The composition of claim 32, wherein said composition further comprises: a plant promoting effective amount of solution-stable Ca.sup.++ moieties; a plant promoting effective amount of solution-stable S.sup.6+ moieties; a plant promoting effective amount of solution-stable Mg.sup.++ moieties; and, a plant promoting effective amount of solution-stable N.sup.3- moieties.

2

Claim 34. (newly added): The composition of claim 33, wherein said solution-stable moieties are a reaction product formed from the reaction of: a first reactant selected from the group consisting of Sulfamic acid, a water soluble Sulfamic acid derivative, an oil soluble Sulfamic acid derivative that can be reacted to provide a water solution-stable Sulfamate, and combinations thereof; and, a second micronutrient and/or macronutrient moiety-including reactant selected from the group consisting of a carbonate, a hydroxide, a carbonate hydroxide, a hydroxide oxide, a metal, and combinations thereof.

Claim 35. (newly added): The composition of claim 33, wherein the solution-stable moieties are formed by reacting effective amounts of: at least one member selected from the group consisting of: a powdered micronutrient metal, a powdered macronutrient metal, Dolomite, Aragonite (Calcium Carbonate), Artinite (Hydrated Magnesium Carbonate Hydroxide), Aurichalcite (Zinc Copper Carbonate Hydroxide), Azurite (Copper Carbonate Hydroxide), Barringtonite (Hydrated Magnesium Carbonate), Baylissite (Hydrated Potassium Magnesium Carbonate), Brugnattellite (Hydrated Magnesium Iron Carbonate Hydroxide), Butschliite (Potassium Calcium Carbonate), Calcite (Calcium Carbonate), Gaspeite (Nickel Magnesium Iron Carbonate), Magnesite (Magnesium Carbonate), Rhodochrosite (Manganese Carbonate), Siderite (Iron Carbonate), Smithsonite (Zinc Carbonate), Ankerite (Calcium Iron Carbonate), Huntite (Calcium Magnesium Carbonate), Kutnohorite (Calcium Manganese Magnesium Iron Carbonate), Minrecordite (Calcium Zinc Carbonate), Norsethite (Barium Magnesium Carbonate), Fairchildite (Potassium Calcium Carbonate), Georgeite (Hydrated Copper Carbonate Hydroxide), Hellyerite (Hydrated Nickel Carbonate), Hydrozincite (Zinc Carbonate Hydroxide), Ikaite (Hydrated Calcium Carbonate), Kalicinite (Potassium Bicarbonate), Lansfordite (Hydrated Magnesium Carbonate), Loseyite (Manganese Zinc Carbonate

Hydroxide), Malachite (Copper Carbonate Hydroxide), Monohydrocalcite (Hydrated Calcium Carbonate), Nesquehonite (Hydrated Magnesium Bicarbonate Hydroxide), Pokrovskite (Hydrated Magnesium Carbonate Hydroxide), Pyroaurite (Hydrated Magnesium Iron Carbonate Hydroxide), Glaukospherite (Copper Nickel Carbonate Hydroxide), Mcguinnessite (Magnesium Copper Carbonate Hydroxide), Nullaginite (Nickel Carbonate Hydroxide), Rosasite (Copper Zinc Carbonate Hydroxide), Zincrosasite (Zinc Copper Carbonate Hydroxide), Sclarite (Zinc Magnesium Manganese Carbonate Hydroxide), Sergeevite (Hydrated Calcium Magnesium Carbonate Bicarbonate Hydroxide), Sjogrenite (Hydrated Magnesium Iron Carbonate Hydroxide), Teschemacherite (Ammonia Bicarbonate), Vaterite (Calcium Carbonate), Zaratite (Hydrated Nickel Carbonate Hydroxide), Tetra-n-butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Tetramethylammonium hydroxide, Tetraethylammonium hydroxide, Iron (III) oxyhydroxide, Iron (III) hydroxide (gamma), Iron (III) hydroxide (alpha), Potassium hydroxide, Nickel (II) hydroxide, Hexane-1,6-bis (tributylammonium) dihydroxide, Calcium hydroxide, Tetra-n-propylammonium hydroxide, Tetra-n-butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Cobalt (II) hydroxide, Copper (II) carbonate dihydroxide, Copper (II) carbonate (basic), Copper (II) hydroxide, Ammonium hydroxide, Magnesium carbonate hydroxide, Methylboron dihydroxide, Magnesium hydroxide, Molybdenum hydroxide oxide phosphate Calcium phosphate hydroxide, Calcium phosphate tribasic, Calcium hydroxide, Zinc subcarbonate, Zinc carbonate (basic), Zinc carbonate hydroxide, Zinc hydroxide, Potassium bicarbonate, Potassium hydrogen carbonate, Potassium carbonate, Nickel (II) carbonate, Nickel (II) carbonate hydroxide, Nickel (II) carbonate (anhydrous), Nickel (II) carbonate (basic), Manganese (II) carbonate, Magnesium carbonate (basic), Magnesium carbonate hydroxide, Ammonium bicarbonate, Ammonium hydrogen carbonate, Ammonium carbonate, Nickel (II) hydroxide, Calcium phosphate hydroxide, Calcium phosphate



tribasic, limestone, Magnesite, lime, slaked lime, magnesium oxide, and/or any combination thereof; and, at least one sulfamic compound, selected from the group consisting of a compound of the formula (II):  $\text{HSO}.\text{sub.3NR}.\text{sup.4R}.\text{sup.5}$  (II) wherein:  $\text{R}.\text{sup.4}$  and  $\text{R}.\text{sup.5}$  are independently selected from the group consisting of hydrogen and a monovalent hydrocarbyl group containing from 1 to about 10 carbon atoms; and at least one of  $\text{R}.\text{sup.4}$  or  $\text{R}.\text{sup.5}$  is hydrogen; a compound of the formula (III):  $\text{R}.\text{sup.1}(\text{NR}.\text{sup.2R}.\text{sup.3}).\text{sub.n.nHSO}.\text{sub.3NR}.\text{sup.4R}.\text{sup.5}$  (III) wherein:  $\text{R}.\text{sup.1}$  is selected from the group consisting of alkyl, hydroxyalkyl, cycloalkyl, and aryl,  $\text{R}.\text{sup.2}$  is selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, cycloalkyl and aryl;  $\text{R}.\text{sup.3}$ ,  $\text{R}.\text{sup.4}$  and  $\text{R}.\text{sup.5}$  are hydrogen; and  $n$  is an integer from 1 to 3; and, combinations thereof.

Claim 36. (newly added): The composition according to claim 33, wherein said composition further comprises a plant promoting effective amount of water.

Claim 37. (newly added): A method for forming a composition, comprising:

- (i) determining deficiencies in the concentrations of macronutrients and micronutrients within said system for supporting living cells;
- (ii) providing reactants, including a water soluble first compound of sulfamic acid and a substantially water insoluble second compound including macronutrient and/or micronutrient moieties at respective pre-selected concentrations sufficient to correct said deficiencies when reacted into said composition; and,

- (iii) reacting said reactants sufficient to provide said composition for correcting said deficiencies.

Claim 38. (newly added): The method of claim 37, wherein said composition further comprises: a plant promoting effective amount of solution-stable Ca.sup.++ moieties; a plant promoting effective amount of solution-stable S.sup.6+ moieties; a plant promoting effective amount of solution-stable Mg.sup.++ moieties; and, a plant promoting effective amount of solution-stable N.sup.3- moieties.

Claim 39. (newly added): The method of claim 38, wherein said solution-stable moieties are a reaction product formed from the reaction of: a first reactant selected from the group consisting of Sulfamic acid, a water soluble Sulfamic acid derivative, an oil soluble Sulfamic acid derivative that can be reacted to provide a water solution-stable Sulfamate, and combinations thereof; and, a second micronutrient and/or macronutrient moiety-including reactant selected from the group consisting of a carbonate, a hydroxide, a carbonate hydroxide, a hydroxide oxide, a metal, and combinations thereof.

Claim 40. (newly added): The method of claim 38, wherein the solution-stable moieties are formed by reacting effective amounts of: at least one member selected from the group consisting of: a powdered micronutrient metal, a powdered macronutrient metal, Dolomite, Aragonite (Calcium Carbonate), Artinite (Hydrated Magnesium Carbonate Hydroxide), Aurichalcite (Zinc Copper Carbonate Hydroxide), Azurite (Copper Carbonate Hydroxide), Barringtonite (Hydrated Magnesium Carbonate), Baylissite (Hydrated

Potassium Magnesium Carbonate), Brugnattellite (Hydrated Magnesium Iron Carbonate Hydroxide), Butschliite (Potassium Calcium Carbonate), Calcite (Calcium Carbonate), Gaspeite (Nickel Magnesium Iron Carbonate), Magnesite (Magnesium Carbonate), Rhodochrosite (Manganese Carbonate), Siderite (Iron Carbonate), Smithsonite (Zinc Carbonate), Ankerite (Calcium Iron Carbonate), Huntite (Calcium Magnesium Carbonate), Kutnohorite (Calcium Manganese Magnesium Iron Carbonate), Minrecordite (Calcium Zinc Carbonate), Norsethite (Barium Magnesium Carbonate), Fairchildite (Potassium Calcium Carbonate), Georgeite (Hydrated Copper Carbonate Hydroxide), Hellyerite (Hydrated Nickel Carbonate), Hydrozincite (Zinc Carbonate Hydroxide), Ikaite (Hydrated Calcium Carbonate), Kalicinite (Potassium Bicarbonate), Lansfordite (Hydrated Magnesium Carbonate), Loseyite (Manganese Zinc Carbonate Hydroxide), Malachite (Copper Carbonate Hydroxide), Monohydrocalcite (Hydrated Calcium Carbonate), Nesquehonite (Hydrated Magnesium Bicarbonate Hydroxide), Pokrovskite (Hydrated Magnesium Carbonate Hydroxide), Pyroaurite (Hydrated Magnesium Iron Carbonate Hydroxide), Glaukospherite (Copper Nickel Carbonate Hydroxide), Mcguinnessite (Magnesium Copper Carbonate Hydroxide), Nullaginite (Nickel Carbonate Hydroxide), Rosasite (Copper Zinc Carbonate Hydroxide), Zincrosasite (Zinc Copper Carbonate Hydroxide), Sclarite (Zinc Magnesium Manganese Carbonate Hydroxide), Sergeevite (Hydrated Calcium Magnesium Carbonate Bicarbonate Hydroxide), Sjogrenite (Hydrated Magnesium Iron Carbonate Hydroxide), Teschemacherite (Ammonia Bicarbonate), Vaterite (Calcium Carbonate), Zaratite (Hydrated Nickel Carbonate Hydroxide), Tetra-n-butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Tetramethylammonium hydroxide, Tetraethylammonium hydroxide, Iron (III) oxyhydroxide, Iron (III) hydroxide (gamma), Iron (III) hydroxide (alpha), Potassium hydroxide, Nickel (II) hydroxide, Hexane-1,6-bis (tributylammonium) dihydroxide, Calcium hydroxide, Tetra-n-propylammonium hydroxide, Tetra-n-

butylphosphonium hydroxide, Tetra-n-butylammonium hydroxide, Cobalt (II) hydroxide, Copper (II) carbonate dihydroxide, Copper (II) carbonate (basic), Copper (II) hydroxide, Ammonium hydroxide, Magnesium carbonate hydroxide, Methylboron dihydroxide, Magnesium hydroxide, Molybdenum hydroxide oxide phosphate Calcium phosphate hydroxide, Calcium phosphate tribasic, Calcium hydroxide, Zinc subcarbonate, Zinc carbonate (basic), Zinc carbonate hydroxide, Zinc hydroxide, Potassium bicarbonate, Potassium hydrogen carbonate, Potassium carbonate, Nickel (II) carbonate, Nickel (II) carbonate hydroxide, Nickel (II) carbonate (anhydrous), Nickel (II) carbonate (basic), Manganese (II) carbonate, Magnesium carbonate (basic), Magnesium carbonate hydroxide, Ammonium bicarbonate, Ammonium hydrogen carbonate, Ammonium carbonate, Nickel (II) hydroxide, Calcium phosphate hydroxide, Calcium phosphate tribasic, limestone, Magnesite, lime, slaked lime, magnesium oxide, and/or any combination thereof; and, at least one sulfamic compound, selected from the group consisting of a compound of the formula (II):  $\text{HSO}^{\text{sub.3}}\text{NR}^{\text{sup.4}}\text{R}^{\text{sup.5}}$  (II) wherein:  $\text{R}^{\text{sup.4}}$  and  $\text{R}^{\text{sup.5}}$  are independently selected from the group consisting of hydrogen and a monovalent hydrocarbyl group containing from 1 to about 10 carbon atoms; and at least one of  $\text{R}^{\text{sup.4}}$  or  $\text{R}^{\text{sup.5}}$  is hydrogen; a compound of the formula (III):  $\text{R}^{\text{sup.1}}(\text{NR}^{\text{sup.2}}\text{R}^{\text{sup.3}})^{\text{sub.n}}\text{HSO}^{\text{sub.3}}\text{NR}^{\text{sup.4}}\text{R}^{\text{sup.5}}$  (III) wherein:  $\text{R}^{\text{sup.1}}$  is selected from the group consisting of alkyl, hydroxyalkyl, cycloalkyl, and aryl,  $\text{R}^{\text{sup.2}}$  is selected from the group consisting of hydrogen, alkyl, hydroxyalkyl, cycloalkyl and aryl;  $\text{R}^{\text{sup.3}}$ ,  $\text{R}^{\text{sup.4}}$  and  $\text{R}^{\text{sup.5}}$  are hydrogen; and n is an integer from 1 to 3; and, combinations thereof.

Claim 41. (newly added): The method according to claim 40, wherein said composition further comprises a plant promoting effective amount of water.